

Geometry Chapter 4 Quarter 1 Practice test Form 1

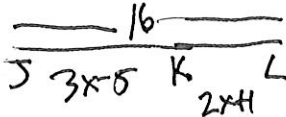
C

- 1 Which of \overline{PQ} and \overleftrightarrow{QR} contains P?



- ☐ A \overline{PQ} only
☐ B \overleftrightarrow{QR} only
☒ C Both
☐ D Neither

- 2 K is between J and L. $JK = 3x - 5$, and $KL = 2x + 1$. If $JL = 16$, what is JK?



$$(3x-5) + (2x+1) = 16$$

$$5x - 4 = 16$$

$$+4 \quad +4$$

$$5x = 20$$

$$x = 4$$

$$JK: 3(4) - 5$$

$$12 - 5 = 7$$

- 3 \overrightarrow{SU} bisects $\angle RST$. If $m\angle RST = (8x + 15)^\circ$ and $m\angle RSU = 5x^\circ$, what is $m\angle RST$?



$$2(5x) = 8x + 15$$

$$10x = 8x + 15$$

$$2x = 15$$

$$x = 7.5$$

$$m\angle RST = 8(7.5) + 15$$

$$75^\circ$$

- 4 If the complement of an angle measure 22° , what is the measure of its supplement?

Complement: 22

Angle: $90 - 22 = 68^\circ$

Supplement: $180 - 68 = 112^\circ$

- 5 The perimeter of a square is 8 meters. What is its area?



$$A = 4m^2$$

- 6 What is the area of a circle whose diameter is 3 centimeters?

$$A = \pi (1.5)^2 = 2.25\pi \text{ cm}^2$$

- 7 The midpoint of a segment is $(2, -5)$, and one of the endpoints is $(3, 6)$. Where is the other endpoint?

$$\left(\frac{x+3}{2} = 2 \right)$$

$$x+3=4$$

$$x=1$$

$$\frac{y+6}{2} = -5$$

$$y+6=-10$$

$$y=-16$$

$$(1, -16)$$

- 8 Where is the image of $(-6, 2)$ reflected across the graph of $y = -x$?

☐ A $(2, -6)$

☐ C $(2, 6)$

☐ B $(-2, -6)$

☐ D $(-2, 6)$

- 9 What is the next term in the sequence?

729, -243, 81, -27, ...

☐ A -9

☐ C 3

☐ B -3

☐ D 9

- 10 For which conditional statement $(p \rightarrow q)$ is its converse $(q \rightarrow p)$ false?

☐ A If a fruit has seeds inside, then it is an orange.

☐ C If the day is between Monday and Wednesday, then it is Tuesday.

☐ B If Meg lives in Egypt, then she lives in Africa.

☐ D If the car will not start, then it is out of gas.

- 11 For which conditional statement $(p \rightarrow q)$ is its inverse $(\sim p \rightarrow \sim q)$ false?

☐ A If a point is a midpoint of a segment, then it divides the segment into two congruent segments.

☐ C If you see a zebra, then you must be in a zoo.

☐ B If Mike does not become an airplane pilot, then he will not learn how to fly a plane.

☐ D If the biggest holiday of the month is Thanksgiving, then the month is November.

A

12 Which justifies the statement?

If $\angle 1 \cong \angle 2$ and $\angle 2 \cong \angle 3$, then $\angle 1 \cong \angle 3$

- ☐ A Transitive Property of Congruence ☐ C Symmetric Property of Congruence
☐ B Commutative Property of Congruence ☐ D Reflexive Property of Congruence

D

13 Which is the most logical conclusion by the Law of Syllogism?

If one of the angles of a triangle is obtuse, then the other two angles are acute. If a triangle is an obtuse triangle, then one of its angles is obtuse. A triangle has two acute angles.

- ☐ A The triangle is obtuse. ☐ C The triangle is not obtuse.
☐ B The other angle in the triangle is obtuse. ☐ D None of these are valid conclusions.

B

14 Which is a true biconditional statement?

- ☐ A Four points are coplanar if and only if they are noncollinear. ☐ C A side of a triangle is a hypotenuse if and only if it is the longest side of a triangle.
☐ B Two angles are complementary if and only if the sum of their measures is 90° . ☐ D A figure has an endpoint if and only if the figure is a segment.

- 15 Complete the proof.

Given: $x = -5$

Prove: $2(x+5) = 0$

Proof:

Statements	Reasons
1. $x = -5$	1. Given
2. $x + 5 = 0$	2. Add. Prop. of =
3. $2(x + 5) = 0$	3. ____?

*Multiplication property of equality*B

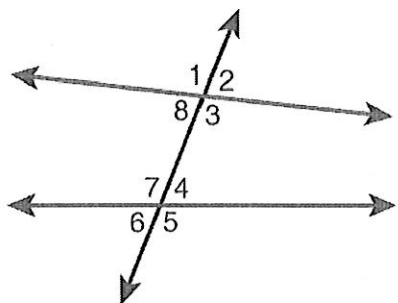
- 16 Complete the statement.

Two lines are parallel if the same-side interior angles are _____ angles.

- ☐ (A) complementary ☐ (C) congruent
☐ (B) supplementary ☐ (D) corresponding

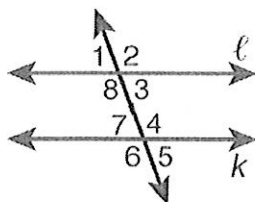
D

- 17 Which angles are alternate interior angles?



- ☐ (A) $\angle 1$ and $\angle 4$ ☐ (C) $\angle 3$ and $\angle 4$
☐ (B) $\angle 1$ and $\angle 5$ ☐ (D) $\angle 3$ and $\angle 7$

18 Complete the proof.

Given: $k \parallel \ell$ 

Prove: $\angle 1$ and $\angle 6$
are supplementary.

Proof:

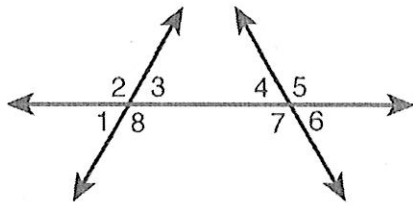
Statements	Reasons
1. $k \parallel \ell$	1. Given
2. $\angle 1 \cong \angle 5$	2. <u>?</u>
3. $m\angle 1 = m\angle 5$	3. Def. of \cong
4. $\angle 5$ and $\angle 6$ are supplementary.	4. Linear Pair Thm.
5. $m\angle 5 + m\angle 6 = 180^\circ$	5. Def. of supp. \angle s
6. $m\angle 1 + m\angle 6 = 180^\circ$	6. Subst.
7. $\angle 1$ and $\angle 6$ are supplementary.	7. Def. of supp. \angle s

*Alt exterior angle theorem*19 A line passes through the points $(5, -8)$ and $(6, 2)$. What is the slope?

$$\frac{2+8}{6-5} = \frac{10}{1} = \textcircled{10}$$

C

20 Complete the paragraph proof.

Given: $\angle 2 \cong \angle 5$ **Prove:** $\angle 1 \cong \angle 4$ **Proof:**

It is given that $\angle 2 \cong \angle 5$. By the Linear Pair Theorem, $m\angle 2 + m\angle 1 = 180^\circ$ and _____. By the Congruent Supplements Theorem, $\angle 1 \cong \angle 4$.

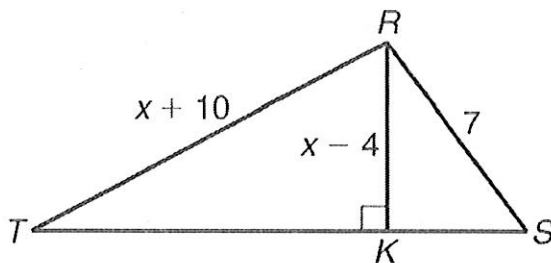
Ⓐ $m\angle 2 + m\angle 3 = 180^\circ$

Ⓒ $m\angle 4 + m\angle 5 = 180^\circ$

Ⓑ $m\angle 4 + m\angle 7 = 180^\circ$

Ⓓ $m\angle 6 + m\angle 7 = 180^\circ$

C

21 Find all values for x .

$$\begin{array}{l} x - 4 < 7 \\ +4 \quad +4 \\ \hline x < 11 \end{array}$$

$$\begin{array}{l} x - 4 < x + 10 \\ -4 < 10 \\ \hline x < 14 \end{array}$$

Ⓐ $x < 11$

Ⓒ $4 < x < 11$

Ⓑ $0 < x < 11$

Ⓓ $x > -3$

22 What is the slope of the line perpendicular to $y = -\frac{3}{2}x + 9$?

$$\frac{2}{3}$$

A

- 23 What is the equation of the line that passes through
- $(0,2)$
- and
- $(4,6)$
- ?

Ⓐ $y = x + 2$

Ⓒ $y = x - 2$

Ⓑ $y = \frac{1}{2}x - 2$

Ⓓ $y = -2x + 2$

slope: $\frac{6-2}{4} = \frac{4}{4} = 1$

$y = x + 2$

C

- 24 Three sides of a triangle are shown. Which triangle is acute?

Ⓐ 3, 4, 5

Ⓒ 4, 5, 6

Ⓑ 5, 12, 13

Ⓓ 4, 7, 10

$5^2 = 3^2 + 4^2$

$13^2 = 5^2 + 12^2$

$6^2 = 4^2 + 5^2$

$25 = 9 + 16$

$169 = 25 + 144$

$36 = 16 + 25$

$25 = 25$ right

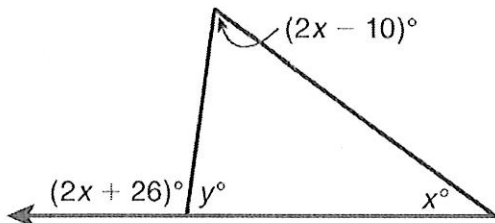
$169 = 169$ right

$36 = 41$

$36 < 41$ Acute

B

- 25 Find
- y
- .



$2x + 26 = 2x - 10 + x$

$2x + 26 = 3x - 10$

$36 = x$

$2x + 26 = 2(36) + 26$

(98)

$y = 180 - 98 = 82$

Ⓐ 36°

Ⓒ 128°

Ⓑ 82°

Ⓓ 134°

B

- 26 Point
- R
- in
- $\triangle QRS$
- has coordinates
- $(-2, 1)$
- .
- $\triangle QRS$
- underwent a dilation with scale factor 5 centered at the origin. What are the coordinates of the image of
- R
- ?

Ⓐ $(-10, 1)$

Ⓒ $(-0.4, 1)$

Ⓑ $(-10, 5)$

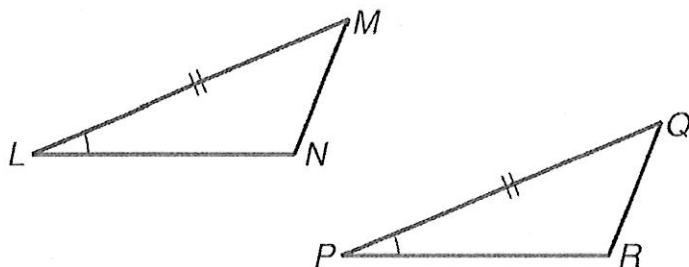
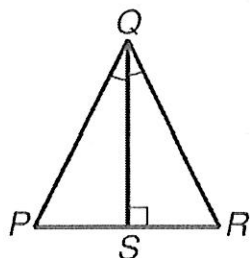
Ⓓ $(-0.4, 0.2)$

D

27 Complete the statement.

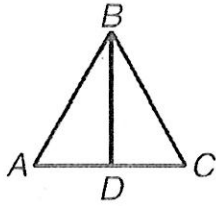
If $\angle U \cong \angle P$, $\angle S \cong \angle Q$, $\angle T \cong \angle R$, $\overline{UT} \cong \overline{PR}$, $\overline{US} \cong \overline{PQ}$, and $\overline{ST} \cong \overline{QR}$, then $\triangle PQR \cong$ _____.☐ A $\triangle RQP$ ☐ C $\triangle TUS$ ☐ B $\triangle STU$ ☐ D $\triangle UST$ C

28 What is the least information needed to prove the triangles congruent by SSS?

☐ A $\angle M \cong \angle Q$ ☐ C $\overline{LN} \cong \overline{PR}$ and $\overline{MN} \cong \overline{QR}$ ☐ B $\overline{LN} \cong \overline{PR}$ ☐ D $\overline{LN} \cong \overline{QR}$ and $\overline{MN} \cong \overline{PR}$ D29 Why is $\triangle PQS \cong \triangle RQS$?☐ A SAS☐ C AAA☐ B ASA☐ D HL

D

30 Complete the proof.

Given: $\triangle ABC$ is equilateral, and \overline{BD} is an altitude.**Prove:** \overline{BD} bisects \overline{AC} .**Proof:**

By definition of equilateral, $\overline{AB} \cong \overline{CB}$, and by the Reflexive Property of Congruences, $\overline{BD} \cong \overline{BD}$. Since \overline{BD} is an altitude, $\angle BDA$ and $\angle BDC$ are right angles. So $\triangle BDA$ and $\triangle BDC$ are right \angle s and $\triangle BDA \cong \triangle BDC$ by HL. Therefore $\overline{AD} \cong \overline{CD}$ by _____. By definition of bisector, \overline{BD} bisects \overline{AC} .

- Ⓐ HL
Ⓑ SAS

- Ⓒ ASA
Ⓓ CPCTC

B31 **Given:** $TUVW$ is a rectangle.**Prove:** $TV = UW$

Which set of coordinates could you use to do a coordinate proof?

- Ⓐ $T(0,0)$, $U(a,b)$, $V(0,c)$, $W(-a,c-b)$ Ⓒ $T(a,b)$, $U(a+b,0)$, $V(a+b,c)$, $W(0,c)$
 Ⓑ $T(0,0)$, $U(a,0)$, $V(a,b)$, $W(0,b)$ Ⓓ $T(0,0)$, $U(a,0)$, $V(a,a)$, $W(0,a)$

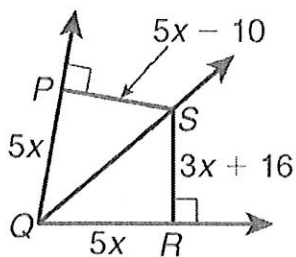
C32 One of the base angles of an isosceles triangle is 40° . Which is the triangle classification according to its angles?

- Ⓐ acute
Ⓑ right

- Ⓒ obtuse
Ⓓ equiangular



- 33 \overrightarrow{QS} bisects $\angle PQR$. what is QR ?



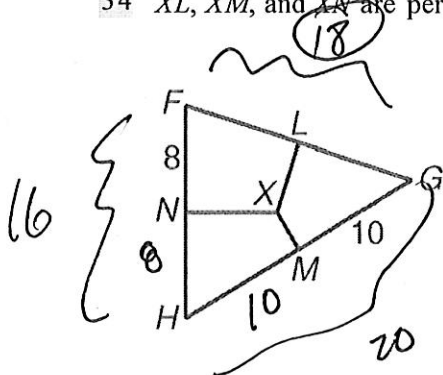
$$5x - 10 = 3x + 16$$

$$2x = 26$$

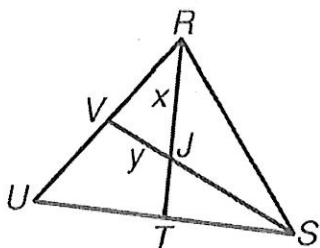
$$x = 13$$

$$QR: 5(13) = \boxed{65}$$

- 34 \overline{XL} , \overline{XM} , and \overline{XN} are perpendicular bisectors. The perimeter of $\triangle FGH$ is 54. What is FG ?



- 35 \overline{SV} and \overline{RT} are medians. What is $JS - JT$?



$$2y - \frac{1}{2}x$$

B

36 In $\triangle JKL$, $JK > JL > KL$. Which is the correct order of the angles from smallest measure to largest?

Ⓐ $\angle J, \angle L, \angle K$

Ⓒ $\angle K, \angle L, \angle J$

Ⓑ $\angle J, \angle K, \angle L$

Ⓓ $\angle L, \angle K, \angle J$

B

37 Two sides of a $30^\circ-60^\circ-90^\circ$ triangle are 9 and 18. What is the length of the third side?

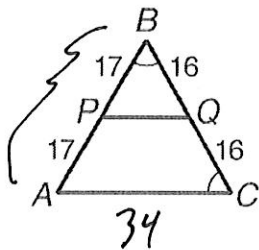
Ⓐ $9\sqrt{2}$

Ⓒ $18\sqrt{2}$

Ⓑ $9\sqrt{3}$

Ⓓ $18\sqrt{3}$

38 \overline{PQ} is a midsegment. What is PQ ?



$$\frac{PQ}{AC} = \frac{1}{2}$$

$$PQ = 17$$

$$AB = AC$$